

84341

Blocking of the End Groups of Polyethylene Terephthalate by Means of o-Phosphoric Acid S/183/60/000/004/007/008 B004/B058

phosphoric acid related to dimethylene terephthalate is sufficient to obtain a purely white fiber. Viscosity and molecular weight are not yet greatly affected thereby. Fig. 3 shows the influence of the point of time at which phosphoric acid is added. Too early an addition retards polycondensation. It is recommended to add phosphoric acid once the polycondensation process has already reached 50-75%. As shown in Fig. 4 the thermal stability of the fiber increases through addition of phosphoric acid (content of carboxyl groups with and without addition of phosphoric acid). An addition of phosphoric acid close to the end of polycondensation does not definitely prevent yellow coloring, but it leads to high thermal stability as can be seen from Fig. 5 (viscosity reduction between 270-290°C becomes smaller). There are 5 figures and 6 references: 3 Soviet, 1 US and 2 British.

ASSOCIATION: VNIIV (All-Union Scientific Research Institute of Synthetic Fibers)

Card 2/2

BOGDANOV, M.N.; PETUKHOV, B.V.; KONDRASHOVA, S.M.

New fibers based on copolyesters. Khim.volok. no.6:21-24 '59.

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.

(Textile fibers, Synthetic) (Esters)

SYCH, L.S.; KOZLOV, V.I.; PETUKHOV, B.V.; KONKIN, A.A.

Using polymer by-products in the manufacture of the fiber
lavan (terylene or dacron). Khim.volok. no.6:12-14 '59.
(MIRA 13:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut
iskusstvennogo volokna.
(Textile fibers, Synthetic--By-products)
(Rayon)

15(4)

AUTHORS

Sych, L. S. , Kozlov, V. I. ,
Petukhov, B. V. , Konkin, A. A.

S/143/53, 000/56, 003, 027

B004/R007

TITLE

The Utilization of Polymer-waste of the Production of Lavsan Fiber

PERIODICAL

Khimicheskiy volokna 1954, Nr 6, pp 12-14 (USSR)

ABSTRACT

Among the waste in the production of the Lavsan fiber, a poly ester fiber, the hanks of the godet wheels may be utilized without any special chemical treatment. They are disentangled on a device shown in figure 1, cut up into rayon fiber, and are used as filling medium for upholstered goods and winter clothing. The larger part of the waste (resinified polymer waste products of the spinnerets, torn fibers) must, however, be decomposed to the initial product (dimethyl-terephthalate). The authors mention respective English patents (Refs 1, 2) and also their attempts at decomposing the polymer by hydrolysis in water or lye and by means of methanol. In water (7 parts by weight corresponding to one part by weight of polymer)

Card 1/3

The Utilization of Polymer waste of the production of Lavsan Fiber S. 113, 59, 28, 36 003, 027
B004, B007

decomposition takes place at 20 to 23 atm within an hour, at 15 atm within 5 hours. The precipitated terephthalic acid is filtered off, dissolved and reprecipitated, and again methylated. In 5 to 7% NaOH (7 to 8 parts by weight corresponding to 1 part by weight polymer) decomposition at 9 to 10 atm takes place within 1 to 2 hours (Table 1). The quantity of re-obtained terephthalate depends on the shape and the size of the waste products. Decomposition by means of methanol is especially recommended, because methanol is a waste product of Lavsan production, directly forms dimethyl terephthalate, and therefore requires no further chemicals (Table 2). The dimethyl terephthalate yield depends on the molecular weight of the polymer (Fig 4) and on the catalyst used in its synthesis (potassiumantimonyl tartrate, calcium acetate, zinc acetate, figure 3). The authors recommend 2 to 3 parts by weight of methanol corresponding to 1 part by weight of polymer, 20 to 27 atm, duration of reaction 3 to 6 h. There are 4 figures, 2 tables, and 2 references.

Card 2/3

The Utilization of Polymer waste of the
Production of Lavan Fiber

3, 145 15, 000 06.003 027
E004, B007

ASSOCIATION: VNIIV - Vsesoyuznyy nauchno-issledovatel'skiy institut
iskusstvennogo volokna
(All Union Scientific Research Institute for Synthetic Fibers)

Card 3/4

15(4)

AUTHORS

Bogdanov, V. N., Antipkin, S. I., Bogdanov, V. N.,
Kondratyev, V. N.

TITLE

New Fibers on the Basis of Polyethylene

IDENTICAL

Antipkin, S. I. and Bogdanov, V. N. 1974

ABSTRACT

The authors mention the disadvantages of the polyethylene terephthalate fiber Dvzan: brittleness, stiffness of the fiber, pointed herefrom according to certain publications (Refs. 1, 2). Polyester is made from dimethyl terephthalate (DMT), ethylene glycol, and sulfuric acid. Sulfuric acid, as a carboxylic acid or catalyst, does not have these disadvantages. The authors investigated the reaction of DMT with p-chlorophenylcarboxylic acid (PCAR). The synthesis of the methyl ester of this acid from p-chlorophenylcarboxylic acid is described. The authors briefly describe the synthesis of the methyl ester of PCAR and the methyl ester of DMT with ethylene glycol at 150°C. The authors

Card 1,3

New Fibers on the Basis of DMT Polymers

5,187,570-06-00-027
-004-00-7

tiling of the excess ethylene glycol at 100°C. Polycondensation at 200°C. Figure 1 shows the influence exerted by the additions of OEB to DMT upon the melting point of the co-polymer. The most favorable effect was produced by additions of up to 10%. The authors investigated such co-polymers with 5 and 10% OEB which they denote as oxon 5 and oxon 10. Synthesis was carried out in the presence of a 0.2% zinc acetate. Figure 2 shows that the reaction with ethylene glycol is quicker in the case of oxon 5 and oxon 10 than in that of pure DMT. Table 1 shows the melting temperature and the specific viscosity of the solution of oxon 5 and oxon 10. Both co-polymers were thermographically investigated according to V. G. Korbaicheva and N. V. Mikhaylov (see Table 2) and showed a lower vitrification temperature than Laysan, but they are less refractory. The fibers produced from oxon 5 and oxon 10 were investigated with respect to the breaking length (12-3' km), breaking elongation (10-21%), tensile strength (10-11) and elastic deformation (Fig. 3). The rayon fibers feel softer than Laysan but rather stronger (Fig. 4). An investigation

Card 2/3

New Fibers on the Basis of Polyesters

1974, 1975, 1976, 1977
PONA, RONA

tivation carried out with a mercury lamp of the type 18k. It showed a better stability than in similar tests with acetate dyes showed better colorability than in case of Piz. There are 4 figures, 2 tables and 1 reference, 1 of which are Soviet.

ASSOCIATION VNIIV Vsesoyuznyy nauchno-issledovatel'skiy institut
iskusstvennykh volokna
(All Union Scientific Research Institute for Synthetic Fibers)

Card 3/3

PEPUKHOV, B. V.

USSR/Physics - Solar Energy, Utilization

Jun 52

"Solar Equipment," M. V. Kirpichev and V. A. Baum

Nauk i Zhizn', Vol 19, No 6, pp 11-12

Soviet scientists B. P. Veynberg, K. G. Trofimov, B. V. Petukhov, S. G. Polyakov, G. I. Markov, R. R. Aparisi, and other solar technicians are busy constructing solar water boilers, distillators of sea water, solar kitchens, reflectors for medical purposes, steam kettles, etc. The heliob laboratory of the Power Engineering Inst Krzhizhanovskiy, Acad Sci USSR, designed a paraboloid mirror of aluminum of 1.2 m diameter and a parabolic-cylindrical mirror with an area of 12 m² for solar boilers, for use in the Main Turkmen Canal region.

PETUKHOV, B.V.

[Solar water heaters] Solnechnye vodonagrevatel'nye ustanovki.
Moskva, Izd-vo Akademii nauk SSSR, 1953. 65 p. (MLBA 7:11)
(Solar water heaters)

English translation on file in Library

PETUKHOV, B.V.

Method of calculating solar water heaters. Ispol'. soln.energ.
no 1:177-201 '57. (MIRA 10:11)
(Solar water heaters)

PHASE I BOOK EXPLOITATION

641

Petukhov, Boris Valentinovich

Ispol'zovaniye energii solntsa (Utilization of Solar Energy) Moscow, Izd-vo "Znaniye", 1958. 32 p. (Series: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy. Seriya IV, 1958, no. 14) 50,000 copies printed.

Sponsoring Agency: Vsesoyuznoye obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy)

Ed.: Islankina, T.F.; Tech. Ed.: Trofimov, A.V.

PURPOSE: The booklet is intended for general readers.

COVERAGE: This booklet gives a short account of fields of utilization of solar energy for public use. Construction of some simply-built apparatus such as water heaters, coolers, boilers, water-fresheners, and apparatus used in medicine is briefly discussed. There are some simple diagrams of construction of

Card 1/3

Utilization of Solar Energy

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solar water heaters (pages 12 and 13). General view photographs appear on page 15. There is a photograph of a solar water-freshener and a diagram of an ejector solar cooler. Attention is given to solar boilers with parabolic and parabolic cylindrical mirrors and general views appear on pages 21 and 22 respectively. At the end of the text there is a general discussion of the conversion of solar energy to electrical. It is stated that in 1956 a solar thermoelectric generator was developed by the Power Institute of Academy of Sciences of USSR. The power of the generator was 18.9 watts at 21 volts. A general view of the generator is given on page 29. There are 7 references in the text, 6 of which are Soviet and 1 English.

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ABAILABLE: Library of Congress

Card 3/3

JP/ad
9-16-58

PETUKHOV, B.V.

Use of solar energy. Politekh. obuch. no. 7:60-63 J1 '59.
(MIRA 11:59)

(Solar energy)

PETUKHOV, B.V.

Solar water heaters. Vod.i san.tekh. no.8:9-13
Ag '60. (MIRA 13:7)
(Solar heating) (Water heaters)

SPUTNIK, 801.

Use of solar energy in the national economy. Publ. tech. ex. n.
inform. Gos. nauch.-issl. inst. nauch. i tekhn. inform.
no. 12-50. P. 164. (Mir, 1964)

L 32143-65 EWP(m)/EWP(j)/T Po-4 EN

EXEMPTION NO: AP017076

00/0185/64/000/004/0024/0026

AUTHOR: Ayzenshteyn, E. M.; Petukhov, E. V.

TITLE: Problems in forming the polyester fiber laysan

NUMBER: Khimicheskiye volokna, no. 4, 1964, 24-26

TOPIC TAGS: polyester plastic

ABSTRACT: A tendency toward increased breaking length of the fiber laysan with increased rate of formation has been established. The amount of orientational stretching in the polyester fiber depends considerably more on the spinneret stretch than on the polyamide fiber. To obtain laysan fiber of relatively high molecular weight (23,000-25,000), it is desirable to use a worm spinning head and a forming temperature not above 290°C. Variation in fiber molecular weight from 17,500 to 25,000 increases breaking length of laysan fiber from 30-35 km to 55-58 km. A similar trend has also been observed for fiber made of the copolyester of terephthalic and hexa-hydroterephthalic acid.

Orig. art. has: 2 formulas, 4 graphs, 2 tables.

End 1/2

1. 32143-65			
REFERENCE NO: AP5017076			
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OR NEW NO: 010	OTHER: 023	JPM	
B-0			
C-2			

1 15708-65 BWA(y)/BWT(m)/BWP(j)/T Pa-4/Pa-5 ASD-3/ESD(t)/SSD/AFAL/ASD(m)-3

ACCESSION NR: AP4048283

S/0183/84/000/005/002/2/0028

AUTHOR: Mikhaylov, N. V.; Gorbacheva, V. O.; Ayzenshteyn, E. M.;
Khokhlova, N. S.; Petukhov, B. V.

B

TITLE: The influence of molecular weight upon the structure and properties of
lavan 15

SOURCE: Khimicheskiye volokna, no. 5, 1984, 22-26

TOPIC TAGS: synthetic fiber, polyester fiber, polyethylene terephthalate fiber,
molecular weight, fiber structure, fiber property, lavsan, polymer crystalliza-
tion, polymer amorphization, polymer orientation

ABSTRACT: The relation between structure and molecular weight was investi-
gated for lavsan, a polyester fiber, and a fiber from polyethylene terephthalate
(PETP) for the purpose of improving the properties of polyester fibers; PETP
resembles lavsan at certain stages. Crystallization kinetics, orientation and
morphology were determined. Polymers with a 16-30,000 molecular weight and

Card 1/2

L 15700-65

ACCESSION NR. AP4046263

fibers of 17-25,000 molecular weight were investigated; the methods for determining molecular weight and properties are enumerated. Dilatometric curves between 40-140C and density measurements showed that an increase in molecular weight decreased polymer tendency to crystallization. The higher the molecular weight, the broader the interval of the glassforming range (51-96C). Amorphization of PETP increased with increasing molecular weight. So did the coefficient $(\alpha = \frac{\Delta n}{\Delta n_0})$ (double refraction index) for determining the orientation of the isotropic fiber. The same applied to lavsan. Fiber strength paralleled molecular weight; this was obtained at higher temperatures. Data on swelling and dissolution in 80 percent sulfuric acid showed fibers with higher molecular weight more resistant to the attack of the acid. Such conditions of structural formation provide good possibilities for obtaining lavsan fibers of great strength. Orig. art. has: 7 figures and 1 table

ASSOCIATION: VNIIV

SUBMITTED: 03Aug65

SUB CODE: ME, 06

ENCL: 00

NO REF SOV: 010

OTHER: 004

Card 2/2

PETUKHOV, B.V.; KONDRASHOVA, S.M.

Properties of a fiber of terephthalic and hexahydroterephthalic
acid copolyesters. Khim.volok no.4:10-13 '62. (MIRA 15:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut steklyanogo
volokna.
(Textile fibers, Synthetic) (Terephthalic acid)

PETUKHOV, B.V.; TEREKHOVA, G.N.

Effect of polyesterification catalysts on side processes during
the synthesis of lavsan. Khim.volok. no.5:24-27 '61.

(MIRA 14:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

(Esterification) (Catalysts) (Lavsan)

KIYANITSA, P., general-leytenant voysk svyazi; PETUKHOV, D., polkovnik

Provide continuous operative communication. Voenn. vest.
40 no.11:81-84 N '60. (MIRA 14:11)
(Communications, Military)

PETUKHOV, D., polkovnik

Ther sergeant went to an exercise. Starsh.-serzh. no.9:9 S '61.
(MIRA 15:2)

(Attack and defense(Military science))
(Russia—Army—Noncommissioned officers)

PETUKHOV, D., polkovnik; MEDVEDEV, G., inzh.-polkovnik

Efficiency-promoting communications troops demonstrate their
achievements. Voen.vest. 40 no.2:97-99 F '61. (MIRA 14:2)
(Communications, Military)

PETUKHOV, D.P., inzh.

Modernization of a hydraulic system for the removal of Ekibastuz
coal ash. Energetik 11 no.10.17-18 0 '63. (MIRA 16:11)

PETUKHIN, F. V.

Electric Circuits - on subject; by

operation of protection of the circuit of the
short circuit of generator. 1971. No. 3, p. 14.
Inst. Chelystenovo

Monthly List of Russian Assemblies, Ministry
of Defense, 1971. "USSR" 1971.

PETUKHOV, Georgiy Alekseyevich; BLAGOVESHCHENSKAYA, N.S., spetsred.;
VESELKINA, A.A., red.; RAKOV, S.I., tekhn.red.

[Wage schedule of workmen; aid to trade-union workers] Tarifnaya
sistema zarabotnoi platy rabochikh; v pomoshch' profsoiuznym
rabotnikam. Moskva, Izd-vo VTsSPS Profizdat, 1958. 94 p.
(MIRA 13:1)

(Wages)

LERNER, Grigoriy Veniaminovich; PETUKHOV, Georgiy Alekseyevich; DENISOVA,
I.S., red.; SHADRINA, N.D., tekhn.red.

[Trade unions' control of wages and the setting of work norms
for workers] Kontrol' profsoiuzov po zarabotnoi plate i normi-
rovaniyu truda rabochikh. Izd-vo VTsSPS Profizdat, 1988. 125 p.
(MIRA 12:4)

(Wages) (Trade unions) (Production standards)

PETROV, G. ...

Senior Engr. of the Central and Eastern Europe
Ministry for Communication

Conveyor for unloading of cargo

Soviet Source: N : V. Chernykh, 1977

Abstract : in U.S. "Trinidad Island" report No.
29032, on file in Library of Congress, Air Information
Division.

CA

3

Photoreactions of phenylmercury hydrazide G. A. Razuvayev and G. G. Petukhov (State Univ., Gorko; *Zh. Obshchei Khim.* (J. Gen. Chem.) 21, 546 (1951); *Photochem. reactions of PhHgOH* with CHCl_3 , CCl_4 , MeOH , EtOH , $\text{H}_2\text{CH}_2\text{OH}$, C_6H_6 , and MePh proceed through division of the Hg compd. into radicals with subsequent action of the OH radical taking H from the solvent to form H_2O . Reaction with MeOH in 20 hrs. gave CH_3O , Ph , C_6H_5 , and Hg . $\text{EtOCH}_2\text{CH}_2\text{OH}$ gave Hg , Ph , C_6H_5 . The use of CHCl_3 gave PhHgCl , HgCl , HgCl_2 , Hg , C_6H_5 , H_2O , and C_6H_6 . CCl_4 yielded PhHgCl , H_2O , C_6H_6 , and an unidentified org. Hg compd. Reaction with C_6H_6 in 90 hrs. gave 77% H_2O , 55% Hg and 21% Ph ; reaction with MePh in 60 hrs. gave 82% H_2O , 80% Hg , 4% C_6H_5 , and a mixt. of isomeric methylbiphenyls. The reaction of PhHgOAc with $\text{EtOCH}_2\text{CH}_2\text{OH}$ in 30 hrs. gave 98% Hg , 82% C_6H_5 , some AcOH , a trace of Ph , and AcH . G. M. Kosolapoff

1951

CA

3

Photoreactions of phenylmercury hydrosides
Razuvay and G. G. Pstakhov (Cherk State Univ.)
Dokl. Akad. Nauk SSSR 21, 713 (1965) (Engl. translation)
See (4) 45, 64954 R M S

PETUKHOV, G. G.

Chem 66

V-48 25 Jan 54

Organic Chem

~~Phenylmercuric hydrosulfide~~, G. G. Petukhov, Akad.
Nauk S.S.S.R., ~~Tr. Vses. Khim. Sbornik~~ *Sbornik* 2, 72-3 (1952). — To 33.6 g. PhHgOAc in hot CCl₄
is added with stirring 0.15 mole 8-10% NaOH and after 20
min. the solvent is removed by steam distn. The cooled
soln. deposits 75-9% PhHgOH, decomp. 200° (from H₂O).
Tolyl, mesityl, and nitrophenyl analogs can be prepd. simi-
larly. G. M. Kosolapoff

(2)
7.27-54

MF
7-27-54

PETUKHOV, G.B.

U.S.S.R.

The effect of the nitro group in some reactions with aryl
~~compounds~~ ~~hydroxides~~. G. G. Petukhov (State Univ.
 Gorki). *Sovetskii Sovet. Khimicheskii Sbornik* 1953, 1, 45, 4918. Ultraviolet irradiation of 1.9 g. p -O-
 $\text{NC}_6\text{H}_4\text{HgOH}$ and 10 ml. $\text{EtOCH}_2\text{CH}_2\text{OH}$ 110 hrs. gave
 88.9% brown ppt. of $(p\text{-O}_2\text{NC}_6\text{H}_4)_2\text{O}$, while the soln. con-
 tained AcH . Stirring 6 g. PhHgOH in 10 g. Me_2CO gave a
 yellow solid which gradually turned colorless, yielding 73.7%
 $\text{PhHgCH}_2\text{NO}_2$ (I), m. 172-3 (with ignition); the yellow
 product, decomp. 142° (from pyridine), is apparently an-
 other form of the above substance, possibly $\text{PhHgON(O)}\text{:CH}_2$.
 I in warm AcOH chilled with ice and treated with
 acid: KCl yielded PhHgCl . Heating 1 g. C_6H_5 20 min. gave
 Ph_2Hg and a yellow basol. $\text{Hg}(\text{CH}_2\text{NO}_2)_2$. I with a basic
 reagent is transformed to the yellow form described above.
 G. M. Kozlovskii

PETUKHOV, G. G.

Chem Abs

V. 48 25 Jan 59

Organic Chem

✓ Reactions of arylmercury hydroxides. G. A. Barytsev and G. G. Petukhov (Gorki S. U. Univ.). *Zhur. Obshchei Khim.* 28, 87-91 (1953).—Irradiation of PhHg radicals leads to decomn. via Ph₂Hg. Photochem. decomn. of ArHgOH was studied in quartz tubes with the following results. PhHgOH (3 g.) in Ethyl Cellosolve (I) in 3 hrs. of irradiation gave 0.13 g. Ph₂Hg and 0.1 g. Hg; 20 hr. irradiation of a more dil. soln. gave the same products and a little Ph₂. *o*-MeC₆H₄HgOH in I in 18 hrs. gave 83.0% MePh, 87% Hg, and some AcH; the *p*-analog in 22 hrs. gave 70.1% MePh, 90.1% Hg, and some AcH. 2,4,6-Me₃C₆H₂HgOH in I gave in 10 hrs. 75.4% mesitylene, 92.1% Hg, and some AcH. *p*-Me₂NC₆H₄HgOH in I in 12 hrs. gave 65% Me₂NPh, 92.4% Hg, and some AcH. *o*-Me-C₆H₄HgOH in C₆H₆ in 60 hrs. gave 65% *o*-MeC₆H₄Ph, 91.4% Hg, and some H₂O; the *p*-analog in 100 hrs. gave 84.7% *p*-MeC₆H₄Ph, 80.2% Hg, and some H₂O. 2,4,6-Me₃C₆H₂HgOH in CHCl₃ in 70 hrs. gave 77.3% mesitylene, 23.4% HgCl₂, 74.1% (HgCl₂), and some C₂Cl₄; similar reaction in CCl₄ in 60 hrs. gave 32.8% mesitylene, 14.2% HgCl₂, 34.8% (HgCl₂), and C₂Cl₄ along with an organomercury compd. of unknown nature. PhHgOH irradiated 80 hrs. in PhI-C₆H₅ gave 80.1% PhHgI, some Ph₂, and H₂O; in C₆H₅-I the products were Ph₂, Hg, and AcH, while substitution of iso-PrOH for I gave Me₂CO instead of AcH; in C₆H₅-CCl₃ the products were PhHgCl, PhCCl₃, HgCl₂, (HgCl₂), and C₂Cl₄. Heating PhHgOH in MeOH 70 hrs. to 180-5° gave 73.6% Hg, 24.0% Ph₂Hg, and traces of C₆H₆ and H₂CO; in 24 hrs. at 200° 88.2% Hg, 12.1% Ph₂Hg, and higher than above yields of C₆H₆ and H₂O were obtained. G. M. Kosolapoff

Chem

116
7-27-54

PERUKHOV, G. G.

USSR.

✓ Reactions of arylmercury hydrazides. G. G. Perukhov.
Uchenye Zapiski Leningradsk. Univ. 1953, No. 24, 128-30;
Referat. Zhur., Khim. 1954, No. 22008.—A review and dis-
cussion. Cf. C.A. 48, 4915a. M. Hersh

NY 24

P. J. Khor, G. C.

Radical Reaction of Polymers with Chlorine
 (Received December 1, 1964; revised February 1, 1965)
 P. J. Khor, G. C. Phillips, and G. A. N. Smith (Chalmers
 Institute of Technology, Stockholm, Sweden)
 It was shown that the cleavage of Ph radicals from Ph₂ occurs with equal facility from polar and equatorial locations. This also Ph groups are essentially
 equally bound to their atoms in spite of their geometric
 proximity. This results in different rates of cleavage
 rates of differently located Cl atoms in Ph₂ (cf. Gerdag
 and Heisterkamp, *Chem. Ber.*, 1964, 97, 2004; and Johnson
 and Heisterkamp, *Chem. Ber.*, 1964, 97, 2005). Ph₂ and Ph₂Cl
 (Ph₂Cl = Ph₂Cl₂ or Ph₂Cl₂) were used. It was shown
 in the Ph₂Cl₂ reaction that the product should
 be labeled only at the polar location. In the Ph₂Cl₂ reaction
 the product should be labeled only at the equatorial
 location. It was shown that the equatorial location
 was labeled only at the equatorial location. The
 product should be labeled only at the equatorial
 location. The labeled Ph₂Cl₂ was subjected to
 cleavage of Ph₂Cl₂ radical by reaction with CHCl₃,
 EtOH and C₆H₆, after which the D content of the Ph₂Cl₂
 was determined. The reaction with CHCl₃ was shown to proceed
 with equal facility from polar and equatorial positions of Ph₂Cl₂
 reaction with EtOH is complicated by capture of H from HO
 of the solvent resulting in radical cleavage again. D distribu-
 tion indicative of equal facility of loss of Ph radicals from
 all D positions. Reaction with C₆H₆ was also complex;
 unlabeled Ph₂Cl₂ in C₆H₆ gave much D-labeled Ph₂Cl₂ (18%);
 no exchange of Ph radicals took place between the solvent
 and reagent. Equal facility of loss of Ph for all D locations
 was again shown.

G. A. N. Smith

RETUKHOV, G. G.

1. Chemical Reaction During Thermal and Photochemical
 Decomposition of Polyacetylene G. A. Yablonsky, G. A.
 Petukhov, M. A. Shulenkova, and V. A. Yablonskaya
 (Moscow State University, Ufa, Khim. Zhur. 21, 167 (1969),
 Russian) — The following results were obtained for reactions
 involving the H exchange between the solvent and the
 products of the decomposition of organometallic compounds. For
 example, starting compound, solvent, D content in solvent (%),
 product, and D content in product (%) given: (1) PhCH_3 ,
 PhCH_3 (I), CD₄ (II), 2000, Ph, 540; 2, PhCH_3 (I), 2,
 Ph, 100; 3, PhCH_3 (I), 2000, Ph, 500; 4, PhCH_3 (I),
 C_6D_6 (II), 100, PhCH_3 (I), 10; 5, PhCH_3 (I), C_6D_6 (II),
 PhCH_3 (I), 100; 6, 1 + Na, II, 0.15, PhCH_3 (I), 7 + 1 +
 II, 2000, PhCH_3 (I), 2000; 7, PhCH_3 (I), 1 + Na, C_6D_6 (II),
 II, 2000, PhCH_3 (I), 2000; 8, PhCH_3 (I), 1 + Na, C_6D_6 (II),
 PhCH_3 (I), 2000; 9, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 10, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 11, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 12, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 13, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 14, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 15, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 16, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 17, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 18, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 19, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 20, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 21, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 22, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 23, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 24, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 25, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 26, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 27, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 28, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 29, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 30, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 31, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 32, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 33, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 34, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 35, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 36, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 37, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 38, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 39, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 40, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 41, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 42, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 43, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 44, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 45, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 46, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 47, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 48, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 49, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 50, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 51, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 52, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 53, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 54, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 55, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 56, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 57, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 58, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 59, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 60, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 61, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 62, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 63, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 64, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 65, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 66, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 67, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 68, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 69, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 70, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 71, PhCH_3 (I), 1 + Na,
 C_6D_6 (II), 2000; 72, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000;
 73, PhCH_3 (I), 1 + Na, C_6D_6 (II), 2000; 74, PhCH_3 (I), 1 + Na,

RAZUVAYEV, G.A.; PETUKHOV, G.G.; KALININA, R.V.

The catalytic decomposition of phenylmercury hydroxide in solvents.
Zhur.ob.khim. 26 no.6:1685-1687 Je '56. (MIRA 11:1)

1.Gor'kovskiy gosudarstvennyy universitet.
(Catalysis) (Mercury hydroxides)

AUTHOR

RAZUVAYEV, G.A., SOROKIN, YU A., DOMRACHEV, G.A., 20-6-30/59
PETUKHOV, G.G., TSVETKOV, YU. D, MOLIN, YU.N.

TITLE

On the structure of organochromic compounds.
(O stroynii khromorganicheskikh soedineniy.- Russian)
Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 6, pp 1293-1294
(U.S.S.R.)

PERIODICAL

ABSTRACT

In a paper recently published by Fischer the synthesis of neutral dibenzolchromium and its salts is described and a report is made concerning some further aromatic derivatives of the chromium-(O). This author assumes that the latter compound has an Δ -structure analogous to ferrocaen. Recently a series of reports was published in which the separation from the reaction products of C_6H_4MgBr and also of the dibenzolchromium with waterless chlorinechromium beside "pentaphenylchromhydroxide" and "tetra" as well as "triphenylchromiodides" is described by Hein. According to a bold, but not precisely proved assumption of Zeiss, the polyphenyl derivatives of chromium have a common bis-aren-structure. If it is assumed that in the chromium iodides (π -benzol, π -diphenyl) and di-(π -diphenyl)-chromium the diphenylgroups are covalently connected, 10 % of D should be expected in the diphenyl separated after the

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reaction with LiAlD_4 . If, however they have a B-structure (illustration 1) diphenyl would contain no deuterium. The composition and the yield of the organic products of the light dispersion of the organochromic compounds in the chloroform agree well with the B-structures. It is known that the compounds of the B-series are paramagnetic and have the magnetic moment = 1.7 of the Bohrs magneton. This corresponds to the existence of a not coupled electron in their molecule. Therefore, the photographing of the spectra of the paramagnetic electron-resonance of such compounds was interesting in order to obtain data about the localisation of the free electron. The absorption spectrum of the aqueous solution of one of these substances (III) is shown by illustration 2. The existence of a superfine structure and the qualitative analysis of the intensity distribution shows that the not coupled electron is in interaction with the hydrogen nuclei of the aromatic rings. (2 illustrations, 1 Slavic reference.)

ASSOCIATION: Scientific Research Institute for Chemistry at the Gorkij State University "N.I. LOBACHEVSKIY".
MOSCOW PHYSICAL-TECHNICAL INSTITUTE.
Institute for Chemical Physics of the Academy of Science of the U.S.S.R.

CARD 2/3

AUTHORS: Razuvayev, G. A., Petukhov, G. G., Artem'yev, A. I. 20-118-5-32/59

TITLE: Reactions of the Exchange of Radicals in Presence of $AlCl_3$
(Reaktsii obmena radikalov v prisutstvii $AlCl_3$)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 11, Nr 5, pp. 900-901
(USSR)

ABSTRACT: The authors proved that the exchange of radicals of organo-metallic compounds with the "solvent" takes place in reactions of the radical as well as in ionic reactions (reference 1). In the present paper the authors wanted to examine the possibility of the progress of the exchange of cations $R^+ + R^*D \rightleftharpoons R^{*+} + RD$ (1), by using deuterium-containing "solvents" and $AlCl_3$. The use of this last catalyst was chiefly investigated in reactions of one acid type (reference 3). Exchange reactions which take place with the participation of carbonium ions were investigated by means of deuterium in reactions between aliphatic hydrocarbons and H_2SO_4 (references 4, 5). For the investigation

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of the exchange of cations haloid and aromatic hydrocarbons were used. The chosen substances show as exchange systems a double interaction with $AlCl_3$: the haloid compounds show carbonium ions in presence of $AlCl_3$, as is well known

[references 6, 7]. Here the exchange can take place according to the equation (1). Aromatic hydrocarbons form a π -complex with $AlCl_3$ in which they are subjected to a strong

protonization (reference 6). The exchange can take place according to the reaction of the acid type. Table 1 shows that chlorobenzene-deuteriobenzene as well as cyclohexyl-deuteriocyclohexanechloride carry through the exchange in presence of $AlCl_3$ until the state of equilibrium. The

exchange takes place in these systems according to the equation (1) with the participation of the phenylcarbo-cation and the cyclohexylcarbo-cation. It is possible that the deuterolysis of the deuteriobenzene favors the reaction of the hydrogen exchange. This condition, however, is not necessary. Contrary to these systems the hydrogen exchange between toluene and deuteriobenzene (table 1, experiments number 10, 11) only takes place according to the equation (2) (acid type). The particles that take part in the exchange

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Reactions of the Exchange of Radicals in Presence of AlCl_3

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are a proton and a deuteron. The exchange process can also be represented as a reaction of electrophilic substitution. By 2 isotopic markings (deuteriotoluene and radiobenzene $1-6 \text{ C}^{14}$) it was proved that besides the exchange of hydrogen there is also an intramolecular migration of the CH_2 group of toluene towards the benzene nucleus. There is practically no exchange between deuteriobenzene and cyclohexane and between cyclohexane and deuteriocyclohexane (table 1, experiments number 12-15). This partly confirms the correctness of the conclusions drawn above. There is no exchange of hydrogen if one of the components forms no π -complex with AlCl_3 (cyclohexane) or if the formation of such a complex is not accompanied by a protonization. In chloronitrobenzene and bromoanisole the influence of the substituents on the exchange was to be investigated. In spite of the expectations it was proved here that only a limited exchange occurs between p-chloronitrobenzene and deuterionitrobenzene, and between o-bromoanisole and deuterioanisole (table 1, experiments 6-9). These results do not quite agree with the fact as stated above that the radicals located at the oxygen

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5(3)

SOV/79-29-9-38/76

AUTHORS:

Razuvayev, G. A., ~~Petukhov, G. G.~~ Osanova, N. A.

TITLE:

Investigation of the Reactions of Pentaaryl Phosphorus. Determination of the Equivalence of the Groups by Means of Deuterium

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 9, pp 2980-2983 (USSR)

ABSTRACT:

The investigation of the reactions of pentaaryl phosphorus with deuterium in a phenyl group in benzene- or chloroform solution showed that the separation of both the polar and the equatorial phenyl groups takes place equally easily and with radical mechanism (Ref 1). The problem arose whether in ionic separation of pentaphenyl phosphorus the equivalence of the polar and equatorial phenyl groups was maintained. The reaction of pentaphenyl phosphorus with hydriodic acid (Ref 2) and acetic acid (Ref 1) is known to be an ionic reaction. The reactions of this phosphorus compound containing deuterium in a phenyl group with the above acids actually showed that the equivalence of the polar and equatorial groups is also observed in the course of an ionic reaction. The quantity of deuterium in dinitrobenzene obtained from the separated phenyl groups amounts to approximately 1/5 of the total quantity of deuterium in pentaphenyl phos-

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SOV/79-29-9-38/76

Investigation of the Reactions of Pentaaryl Phosphorus. Determination of the
Equivalence of the Groups by Means of Deuterium

phorus as may be seen from the data of table 1 (experiments 1,2). J. Wittig substituted the p-tolyl group for a phenyl group and found in the reaction of tetraphenyltolyl phosphorus with hydrobromic acid (Ref 2) that besides benzene and toluene a mixture of triphenyl-p-tolyl- and tetraphenyl phosphonium bromide results (3:1). Information on the ratio of benzene to toluene is, however, missing in his report as well as the method of determining the ratio of the salts in the reaction products. The authors assumed that such a ratio of the separated phenyl- to the tollyl groups with tagged atoms could be determined. For this purpose a tetraphenyl-p-tolyl phosphorus with a deuterium atom in the cycle of the tollyl group was synthesized and caused to react with hydrobromic acid, chloroform, and alcohol. The table (columns 5,9) gives data on the distribution of deuterium in products obtained from the separated radicals, and in the radicals which remained linked to the phosphorus, on the assumption of equivalent separation of the tollyl- and phenyl groups. A comparison of these data with those experimentally obtained (Table, experiment 3) shows that in ionic reactions (in

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Investigation of the Reactions of Pentaaryl Phosphorus. Determination of the
Equivalence of the Groups by Means of Deuterium

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this case in the reaction with HBr (Table, experiment 3)) there is no difference in the rate of separation between the tolyl- and phenyl groups of tetraphenyl-p-tolyl phosphorus. In chloroform, where the reaction takes place according to the radical mechanism, separation of the phenyl radicals is predominant (Table, experiments 4,5). There are 1 table and 3 references, 1 of which is Soviet.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet (Gor'kiy State University)

SUBMITTED: July 21, 1958

Card 3/3

YETDOROV, V. N., KRIVOKHIL, M. I., FADZAYEV, A. A., YEFIMOV, I. I.,
KRENOV, V. F.

Proton magnetic resonance spectra of some allyl esters
compounds. Izv. AN SSSR, Ser. Khim. no. 8:1521-1524, 1974, 21 pp.,
Moscow, U.S.S.R.

In Gorkovskiy gosudarstvennyy universitet im. N. I.
Iobachevskogo, Inst. int. khimicheskoy fiziki, AN U.S.S.R., Ser.
organicheskoy khimii N. S. Zelinskogo AN SSSR.

RAZUVAYEV, G.A.; GALIULINA, R.F.; PETREKHIN, S.G.; LITKOVIDOVA, N.V.

Oxidation of diphenylzinc and diphenylmagnesium. Zhur.ob.
khim. 33 no.10:3358-3360 0 '63. (MIRA 16:11)

5 (3)

AUTHORS:

Razuvayev, G. A., Corresponding Member
AS USSR, Petukhov, G. G., Zateyev, B. G.

SOV/20-127-2-31/70

TITLE:

On the Interaction Between Phenyl Radicals and Benzene

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 2, pp 348-351 (USSR)

ABSTRACT:

The interaction between the radicals produced in the occurring dissociation of the initial compound (R:R) (under the influence of temperature, light, etc) and the medium solvent (X:S) is very important in the free radical reactions. This problem has been investigated as late as in most recent time in spite of its importance. 1) the initial substance can form an intermediate complex with the solvent $[R : RX : S]$ which will homolytically decompose in free shape into RX and RS without separation of radicals. 2) The substance $[R : R]$ can be solvated. In its decomposition into radicals the latter can enter into an interaction in a "cell" without transition into the volume of the solvent. Finally the radicals can pass over from this "cell" into the volume of the solvent and form with the latter an intermediate complex there $[R \cdot X : S]$. In this case the radicals may cause chain processes. The radical transition can be caused by the transition of the peripheric atom of the solvent X to the

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On the Interaction Between Phenyl Radicals and Benzene 30V/20-127-2-31/70

radical R. The system in which $R = S$ is a special case. By this the radical is regenerated and its kinetic duration of life is prolonged. The authors investigated in the present paper the topic mentioned in the title by the example of several compounds which decompose homopolarly under separation of the phenyl radical. The method of marked atoms was used in order to prove the reaction of the radical transition. C^{14} was for this purpose introduced into the initial compound as well as into benzene, i.e. 2 systems were investigated: a marked dissociating compound and inactive benzene, and an unmarked compound and active benzene. 3 types of the interaction mentioned in the title can be assumed here (see Scheme (I) - (III)). Among them the reaction (III) is anew experimentally confirmed (Ref 3). However, the occurrence of process (III) does not eliminate reaction (II). It is very probable that the first stage of the interaction will be the formation of the π -complex (IV) which can pass over into a σ -complex (III) if the radical transition does not proceed in it. By the example of diphenyl mercury (DPhM) (Refs 4, 5) it was proved that diphenyl was produced only by DPhM. Benzoyl peroxide (BP) is another source of phenyl radicals. Its reaction with benzene is rather complicated and several products or their

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mixture are produced. Although the phenyl radicals from BP were predominant, a part of the BP phenyl radicals escaped nevertheless as benzene into the volume on the strength of the reaction (II). The reaction of the initiated mercury acetate decomposition was used in order to prove this process better (Ref 7). A small quantity of terphenyl and quaternary phenyl is produced besides diphenyl. Since a disagreement in the number of isotopes of the di- and quaternary phenyl was striking it could be assumed that quaternary phenyl was not produced by diphenyl by its subsequent phenylation. This was experimentally confirmed. The formation of quaternary phenyl requires, however, further investigations. Finally the influence of ultraviolet light and of lead tetrabenzoate is discussed. There are 1 table and 8 references, 5 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete (Scientific Research Institute of Chemistry at the Gor'kiy State University)

SUBMITTED: March 18, 1959
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5(3).

SOV/20-107-1-2 /61

AUTHORS:

Lazurayev, G. A., Corresponding Member, AS USSR, Leningrad, U.S.S.R.
Zatoyev, I. G.

TITLE:

An Investigation of the Reactions of Transfer of Phenyl Radicals

PERIODICAL:

Doklady Akademii nauk SSSR, 1950, Vol 127, No 1, p. 203-204
(USSR)

ABSTRACT:

On the basis of a previous article (Ref 1) the authors investigated here the decomposition of various compounds yielding phenyl radicals: (a) nitroso-aceto-anilide; (b) diphenyl isonitrosylide; (c) double salt of phenyl-liazonium with pyrazole chloride. This occurred in a solution of benzene marked with C^{14} in the presence of metallic mercury. (a) This substance (Ref 2) is known to produce phenyl mercury chloride if it is dissolved in CCl_4 . On the whole, reaction with benzene took place. The isolated diphenyl (1.5 g, yield 53%) consisted of phenyl radical, of the nitroso compound and of benzene. Nonetheless, partial interaction took place between the radicals and mercury. The phenyl mercury acetate obtained from this reaction was converted into chloride; it proved to be inactive after several recrystallizations, whereas diphenyl showed an activity of 37% per mole/mole, i.e., 15%.

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double diazo salt in the presence of metallic mercury
(Experiments 3 and 4, Table 1); but these experiments failed to
show that phenyl-mercury compounds could be obtained. The same applied
to sodium amalgam which had been substituted for mercury
(Experiment 4). Neither a mercury- nor a sodium amalgam addition
affected the yields of chlorobenzene and diphenyl. Nor was this
the case with metallic zinc and copper, which could not alter the
decomposition of the double diazonium salt in benzene.
(Experiments 5 and 6). Hence, formation of free phenyl radicals
could not be found. There are 1 table and 3 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskoy
gosudarstvennoy universitete im. N. I. Lobachevskogo (Scientific
Institute of Chemistry of Gorky State University named
N. I. Lobachevsky)

SUBMITTED: May 17, 1959

Card 3/3

RAZUVAYEV, G.A.; ZATEYEV, B.G.; PETUKHOV, G.G.

Mechanism of the reaction between benzoyl peroxide and benzene.
Sbor. nauch. rab. Inst. fiz.-org. khim. AN BSSR no. 8:41-43 '60.

(MIRA 14:3)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I. Lobachevskogo.
(Benzoyl peroxide) (Benzene)

85393

S/079/60/030/006/027/033/XX

BOO:/BO55

5 3700

2209, 1273, 1312

AUTHORS: Razuvayev, G. A., Mitrofanova, Ye. V. and Petukhov, G. G.

TITLE: Some Reactions of Triphenyl Aluminum

PERIODICAL: Zhurnal Obshchey Khimii: 1960, Vol. 30, No. 6
pp. 1996-2002

TEXT: Systems containing alkyl compounds of aluminum and halogen compounds of titanium are recently being used as catalysts in the polymerization of olefins. The mechanism of this type of polymerization is still unclear. A radical mechanism was suggested in Refs. 1-7. The authors of the present paper believed that the formation of free radicals in these systems can be determined comparatively simply by introducing a substance like triphenyl aluminum into them, since it is known that phenyl radicals in solutions are detectable (Refs. 8-9). Triphenyl aluminum in a system containing titanium tetrachloride has already been used as a catalyst for the stereospecific polymerization of olefins (Refs. 10-11). It was of great interest in this connection.

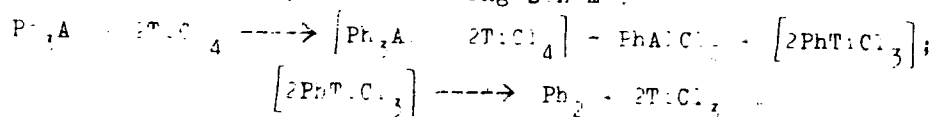
Chem. /1

85393

Some Reactions of Triphenyl Aluminum

3/679/66/036/006/027/033/XX
B00*/B055

To study the reaction of triphenyl aluminum with TiCl_4 in tagged benzene, and also its reaction with metallic Hg and TiCl_4 . To begin with, it was found that no exchange reaction of phenyl radicals takes place between triphenyl aluminum and tagged benzene (Ref. 12); the product formed contained no deuterium. Table 1. Reaction of triphenyl aluminum and TiCl_4 in deuterated benzene gave a diphenyl in 25% yield referred to three phenyl groups of triphenyl aluminum. In all experiments the diphenyl contained deuterium. The deuterium content was a measure for the degree of hydrogen exchange (Tab. 2). The formation of deuterated diphenyl is best illustrated by the following Scheme:



Thus, the reaction carried out in various solvents gives diphenyl without intermediate formation of free phenyl radicals. This is shown by the absence of a "stepwise exchange" (see) by the absence of a reaction

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Some Reactions of Triphenyl Aluminum

S/079/60/030/006/027/033/XX
B001/B055

between free phenyl radicals and the tagged solvent benzene, and by the absence of a reaction of phenyl with metallic mercury when the reaction is carried out in the presence of the latter metal. The oxidation of triphenyl aluminum solutions with oxygen follows a radical mechanism. This is confirmed by the use of triphenyl aluminum and benzene, both tagged with C^{14} . It was shown that the reaction products (diphenyl and phenyl) are obtained from both phenyl radicals of triphenyl aluminum and the solvent benzene. The authors thank B. A. Redoshkin for carrying out one of the experiments. They mention A. N. Nesmeyanov and K. A. Kiselevskiy. There are 4 tables and 20 references: 10 Soviet, 3 US, 4 German, and 3 Rumanian.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet (Gor'kiy State University)

SUBMITTED: May 18, 1959

Card 3/4

RAZUVAYEV, G.A.; ZHIL'TSOV, S.F.; DRUZHKOV, O.N.; PETUKHOV, G.G.

Oxidation of alkyl organomercury compounds. Dokl. AN SSSR 152
no.3:633-636 S '63. (MIRA 1:122)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I.Lobachevskogo. 2. Chlen-korrespon-
dent AN SSSR (for Razuvayev).

82295
S/079/60/030/007/005/020
B001/B063

5.3700B

AUTHORS: Mitrofanova, Ye. V., Artëmov, A. N., Petukhov, G. G.

TITLE: Reactions of Triphenyl Aluminum With Halogen Compounds of
Titanium in Fluorobenzene and Deuterobenzene Solutions

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 7, pp. 2138-2141

TEXT: At present, α -olefins are frequently polymerized with complex catalysts consisting of organoaluminum compounds and of halogen compounds of titanium. The course of reaction between these two components, has, however, only been described by the papers of Refs. 1 and 2. For this reason the authors of the present paper studied the reaction of triphenyl aluminum with halogen compounds of titanium in various apolar solvents, such as benzene and cyclohexane, as well as in polar solvents, such as fluorobenzene, in order to find out whether the solvent has any effect. Following the preceding paper (Ref. 3) the authors studied the reaction of triphenyl aluminum with $TiCl_4$ and $TiOCl_2$ in fluorobenzene. It was found that this polar solvent did not influence the above reactions, and both

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Reactions of Triphenyl Aluminum With Halogen
Compounds of Titanium in Fluorobenzene and
Deuterobenzene Solutions

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reactions gave only diphenyl. The absence of fluorine derivatives of diphenyl indicated that there were no free radicals in these reactions. In the presence of free phenyl radicals it may be assumed that they react with the solvent, thus leading to the formation of mono- and difluorodiphenyls. Thus, the above-mentioned reaction in fluorobenzene does not take place according to the free radical mechanism (Ref. 3). The above reaction in deuterobenzene is accompanied by an intense H-D exchange which is caused by the compounds having Al-X bonds (X - halogen). For this reason, the hydrogen exchange between diphenyl and deuterobenzene in the presence of AlCl_3 takes place very easily, contrary to TiCl_4 in whose presence no exchange occurs. In the present paper, the authors studied the possibility of H-D exchange in deuterobenzene between triphenyl aluminum and other halogen compounds of titanium, especially TiOCl_2 and TiCl_3 . With these and other titanium compounds the reaction of triphenyl aluminum in deuterobenzene took place under the formation of diphenyl containing deuterium. A table contains comparative data on the diphenyl yield

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Reactions of Triphenyl Aluminum With Halogen
Compounds of Titanium in Fluorobenzene and
Deuterobenzene Solutions

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and the deuterium content of the latter for various halogen compounds of titanium, and it is shown that these data somehow depend on the ratio of the reacting components. Tetravalent titanium compounds effect the strongest H-D exchange. There are 1 table and 8 references: 5 Soviet, 1 US, and 2 German. IX

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet (Gor'kiy State University)

SUBMITTED: July 18, 1959

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SOV/20-13-2-25/69

AUTHORS: Razuvaev, G. A., Corresponding Member AS USSR, Zateyev
B. G., Petukhov, G. G.

TITLE: By-products in the Reaction of Benzoyl Peroxide With
Benzene

PERIODICAL: Doklady Akademii Nauk SSSR, 1960, Vol. 130, No. 2,
pp 330 - 337 (USSR)

ABSTRACT: In a previous paper (Ref 3), the authors proved a discrepancy between the computed and established isotope composition of diphenyl and quaterphenyl formed as by-products in the reaction mentioned in the title. Benzene and benzoyl peroxide (BP) marked with C¹⁴ were used for this experiment. Another experiment made under the conditions of reference showed that 41% of phenyl radicals from the benzene are contained in the resulting diphenyl instead of the 50% computed. This value lies near the data obtained previously (Ref 3), as well as those by R. I. Milyutinskaya, Kh. S. Bagdasar'yan and Ye. A. Izraelovich (Ref 4). If it is assumed that the phenylation reaction proceeds further, and quaterphenyl develops from the terphenyl, the quaterphenyl

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60-49

By-products in the Reaction of Benzoyl Peroxide With SOV/20-130-2-75/79
Benzene

must contain a phenyl ring from the benzene and 3 rings from the BP. Its isotope composition, however, diverges considerably. It was shown by experiments that 2 phenyl rings each from the benzene and from the BP are contained in the quaterphenyl. Therefore, another formation source of quaterphenyl must necessarily exist. To check this assumption, the authors added diphenyl and terphenyl to the reaction mixture benzene + BP. Inactive diphenyl was added to the benzene solution of marked BP (Experiment Nr 3). If diphenyl is produced from quaterphenyl, this addition should considerably reduce the activity of the quaterphenyl. The experiment, however, showed practically unchanged activity. Very similar results were obtained by addition of active diphenyl to a reaction mixture of inactive components (Experiment Nr 4). The isolated quaterphenyl contained no C¹⁴. As in experiment Nr 4, inactive quaterphenyl was obtained by BP decomposition in benzene in the presence of the marked terphenyl added (Experiment Nr 5). In the interaction of BP with marked diphenyl under the conditions of reference 2, the isolated terphenyl correspond with

Card 2/3

By-products in the Reaction of Benzoyl Peroxide With SOV/20-130-2-25/59
Benzene

respect to the isotope composition - to a terphenyl which contains a benzene ring from the BP per 1 molecule of diphenyl; the quaterphenyl - 2 BP rings per 1 molecule of diphenyl (Experiment Nr 6). On the basis of the paper by D. F. Tar and R. A. Long (Ref 5), the authors give a scheme for the total course of the BP reaction with benzene (considering the reaction in marked benzene). Accordingly, the quaterphenyl must develop due to the dehydrogenation in the reaction of the BP or the free radicals of tetrahydrodiphenyl. The isotope composition of the latter corresponds to the computation made on the basis of the scheme suggested. There are 1 table and 5 references, 2 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N. I. Lobachevskogo (Scientific Research Institute of Chemistry, Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: September 21, 1959

Card 3/3

RAZUVAYEV, G.A.; PETUKHOV, G.G.; ZHIL'TSOV, S.F.; KUDRYAVTSEV, L.F.

Oxidation of dicyclohexylmercury. Dokl. AN SSSR 135 no.1:87-90
N'60. (MIRA 13:11)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I.Lobachevskogo. 2. Chlen-korres-
pondent AN SSSR (for Razuvaev).
(Mercury)

RAZUVAYEV, G.A.; PETUKHOV, G.G.; KAPLIN, Yu.A.

Reactions of diphenylmercury with benzene. Dokl. AN SSSR 135
no.2:342-345 N '60. (MIRA 13:11)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im.N.I.Lobachevskogo. 2. Chlen-
korrespondent AN SSSR (for Razuvayev).
(Mercury) (Benzene)

S/079/61/031/001/023/025
B001/B066

AUTHORS: Razuvayev, G. A., Latyayeva, V. N., and Petukhov, G. G.

TITLE: Decomposition of Acyl Peroxides in Acid Medium

PERIODICAL: Zhurnal obshchey khimii, 1961, Vol. 31, No. 1, pp. 268 - 272

TEXT: Refs. 1 and 2 indicate the possibility of a regenerative exchange in carboxylic acids $\text{RCOO}^\cdot + \text{R}'\text{COOH} \longrightarrow \text{RCOOH} + \text{R}'\text{COO}^\cdot$ (1), but so far this could not be confirmed experimentally. On the basis of Refs. 1 - 5, the authors tried once more to establish the so-called "relay-transfer" of the acyloxy radicals (1) in carboxylic acids. For this purpose, the reaction of benzoyloxy- and m-nitro-benzoyloxy radicals which are more stable than the acetyloxy radicals was carried out in acetic and benzoic acid C^{14} -labeled in the carboxyl. The separation of labeled C^{14}O_2 may indicate the occurrence of such an exchange, provided that the initial acids and the resultant products are stable to CO_2 separation during the course of reaction. A spontaneous decarboxylation of acetic and benzoic acid at 100°C is im-
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Decomposition of Acyl Peroxides in Acid
Medium

S/279/61/031/001/023/025
B001/B006

possible. Apart from the papers of Refs. 6 - 8, no papers have been published so far on the reaction products of benzoyl and acetyl-benzoyl peroxide in benzoic acid, and of m-nitro-benzoyl peroxide in acetic acid. The authors therefore first determined the principal products of these reactions. They studied the decomposition of benzoyl-, acetyl-benzoyl- and m-nitro-benzoyl peroxides in acetic and benzoic acid labeled with C^{14} in the carboxyl. The separating carbon dioxide gas was found to contain 2 - 25 % of radioactive $C^{14}O_2$. Decomposition of benzoyl- and m-nitro-benzoyl peroxide in deuterated acetic acid (CH_3COOD) disclosed that the R-radical of the peroxide splits off 1 - 3 % deuterium from the carboxyl group of the acid ($R = C_6H_5, C_6H_4NO_2$). The separation of the labeled $C^{14}O_2$ is explained by the "relay-transfer" of the acyloxy radicals in carboxylic acid medium. The only possible source of the $C^{14}O_2$ formation is thus the decarboxylation of the $RC^{14}OO\cdot$ radicals of the labeled solvent. Contrary to the remaining peroxides, acetyl benzoyl peroxide gives a considerable quantity of methyl benzoate on decomposition into acids,

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Decomposition of Acyl Peroxides in Acid
 . Medium

S/079/61/011/001/023/025
 BOC1/BO66

especially in the case of benzoic acid (70 %), which may be explained by the reaction $C_6H_5COOOCOCH_3 \longrightarrow C_6H_5COOCH_3 + CO_2$ (2). Table 2 summarizes the experimental results on the decomposition of benzoyl-m-nitro-benzoyl peroxide dissolved in CH_3COOD ; they show that in the case of the phenyl radical, the deuterium separation is 3 %, and in the case of the nitro-phenyl radical 1.2 %. With m-nitro-benzoyl peroxide the ratio of $C_6H_4DNO_2 : C^{14}O_2$ is only 1 %. S. F. Zhil'tsov is thanked for carrying out the radiometric determinations. There are 2 tables and 11 references: 5 Soviet, 4 US, and 2 British.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete (Scientific Research Institute of Chemistry at the Gor'kiy State University)

SUBMITTED: January 29, 1960

Card 3/3

PETUKHOV, G.G.; GALIULINA, R.F.

Radical exchange between tertiary alcohols and corresponding hydrocarbons in the presence of sulfuric acid. Zhur.ob.khim. 31 no.7:2159-2161 J1 '61. (MIRA 14:7)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete imeni N.I. Lobachevskogo.
(Alcohols) (Hydrocarbons) (Radicals (Chemistry))

RAZUVAYEV, G.A.; MITROPANOVA, Ye.V.; PETUKHOV, G.G.

Reactions of triethylaluminum and triphenylaluminum with
benzoyl peroxide in benzene solution. Zhur.ob.khim. 31 no.7:
2340-2343 J1 '61. (MIRA 14:7)

1. Gor'kovskiy gosudarstvennyy universitet.
(Aluminum) (Benzoyl peroxide)

HAZUVAYEV, G.A.; MITROFANOVA, Ye.V.; PETUKHOV, G.G.

Oxidation of triphenylaluminum and phenyllithium. Zhur.ob.khim.

31 no.7:2343-2347 J1 '61.

(MIRA 14:7)

(Aluminum) (Lithium) (Oxidation)

RAZUVAYEV, G.A.; PETUKHOV, G.G.; GALIULINA, R.F.; BREVNOVA, T.N.

Investigating the reactivity of phenyllithium by means of
exchange reactions. Zhur.ob.khim. 31 no.7:2347-2349 J1 '61.
(MIRA 14:7)

(Lithium) (Benzene)

RAZUVAYEV, G.A.; PETUKHOV, G.G.; OSANOVA, N.A.

Investigating the reaction of pentaphenyl phosphorus with
benzene by means of tagged atoms. Zhur.ob.khim. 31 no.7:
2350-2353 J1 '61. (MIRA 14:7)
(Phosphorus organic compounds) (Benzene)

RAZUVAYEV, G.A.; TERMAN, L.M.; PETUNHOV, G.G.

Mechanism of the thermal degradation of percarbonates in solution.
Dokl. AN SSSR 136 no.3:628-630 Ja '61. (MIRA 14:2)

1. Chlen-korrespondent AN SSSR (for Razuvayev).
(Peroxycarbonates)

TERMAN, L.M.; RAZUVAYEV, G.A.; PETUKHOV, G.G.

Addition of isopropyl alcohol to maleic acid, initiated by
percarbonates. Dokl. AN SSSR 136 no.6:1349-1350 P '61.
(MIRA 14:3)

1. Chlen-korrespondent AN SSSR (for Razuvayev).
(Isopropyl alcohol)
(Maleic acid)
(Peroxyarbonates)

RAZUVAYEV, G.A.: PETUKHOV, G.G.; KAPLIN, Yu.A.; KUDRYAVTSEV, L.F.

Decomposition of diphenylmercury in cyclohexane and cyclohexene.
Dokl. AN SSSR 141 no.2:371-373 N '61. (MIRA 14:11)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete im. N.I.Lobachevskogo.
(Mercury) (Cyclohexane) (Cyclohexene)

RAZUVAYEV, G.A.; PETUKHOV, G.G.; GALIULINA, R.F.; SHABANOVA, N.N.

Dyphenylzinc reactions studied by isotopic and spectrometric
methods. Zhur. ob. khim. 34 no.11:3812-3815 N '64
(MIRA 1841)

L 04735-67 EWT(m)/EWP(v)/FWP(s)/EWP(t)/ETI/EWP(k) LJP(c) ID/WW/BB/WW

ACC NR: AP6027013

SOURCE CODE: UR/0080/66/039/005/1200/1203

AUTHOR: Petukhov, G. G.; Titov, V. A.

ORG: none

TITLE: Use of organometallic compounds as flux activators for soldering printed mounting plates with low-melting solders

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 5, 1966, 1200-1203

TOPIC TAGS: radio engineering, solder, metal soldering, organometallic compound, organosilicon compound, organobismuth compound, organotin compound, organogermanium compound, polyester plastic

ABSTRACT: The possibility of improving fluxes for low-melting solders by incorporating activators into the natural or polyester resins used in radio technology was investigated. Stable organometallic compounds of metals found in the composition of the solders to be used were added to the flux. Organosilicon hydrides, e.g. triphenyl-, tricyclohexyl-, triethyl-, or ethyldipropylsilane, in combination with organic amines, act as activators for rosin or polyester resins for soldering with solders melting at 30-150°. Activation is attributed to formation of a monomolecular layer of silicon on the metal surface to lower its surface

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L 041 B-57

ACC NR: AP6027013

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energy. Bismuth and antimony organic compounds also promote the flow of the solder, but there is a danger of contaminating the solder with finely dispersed metal due to their decomposition. Addition of organotin and organogermanium compounds, e.g. tetrabutyltin and tricyclohexylgermane, to the rosin fluxes causes intense beading of very low temperature solders, but these compounds can be used as activators of the fluxes when used with solders melting at 200-320°. Orig. art. has: 1 table and 2 figures.

SUB CODE: 07, 11, 13/ SUBM DATE: 12Jul65/ ORIG REF: 005/
OTH REF: 002

Card 2/2

eqh

SOROKIN, Yu.A.; PETUSHOV, G.G.

Remarks on the synthesis of bis-alkylbenzene π -complexes
of chromium. Zhur.ob.khin. 35 no.12:2135-2137 D '65.

(MIRA 19:1)

1. Submitted January 11, 1965.

1-4943-6 EWT(1)/EWT(m)/EPP(c)/EWP(1)/EWP(3)/EWP(t)/EWP(a)/EWP(b)/EWA(h)
 ACC NR: AP5025697 IJP(c) JD/HW/JG/ SOURCE CODE: UR/0286/65/000/018/0047/0047
 RM 14.55 44.55 44.55 44.55 44.55 44.55
 AUTHORS: Artemov, A. N.; Yermolayev, V. I.; Nazarova, R. G.; Petukhov, G. G.;
Razuvayev, G. A.; Solov'yev, I. P.; Solov'yeva, N. A.; Sorokin, Yu. A.;
Tyutyayev, I. N.

ORG: none

TITLE: Method for manufacturing film type electrical resistors. Class 21,
 No. 174697

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 18, 1965, 47

TOPIC TAGS: electric resistor, chromium, nickel

ABSTRACT: This Author Certificate presents a method for manufacturing thin film electrical resistors by vacuum deposition of Cr and Ni onto an insulating base. To improve the adhesion of the metal film to the insulating base and to decrease the thermal resistance coefficient, dibenzylchromium $(C_6H_5)_2Cr$ is mixed with dicyclopentadienylcarbonylnickel $(C_5H_5Ni(CO))_2$ in the ratio 1:(2.5-2.7), and the

Card 1/2

UDC: 621.316.849.539.216.2.002.2
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ACC NR: AP5025697

mixture is heated to the temperature of thermal decomposition.

SUB CODE: EC/

SUBM DATE: 12Mar64

OC
Card 2/2

RAZUVAYEV, G.A.; DRUZHKOVA, O.N.; ZHIL'TSOV, S.F.; PETUKHOV, G.G.

Isotope and mass spectrometric method of studying the reaction of diphenylmercury with alcohols. Dokl. AN SSSR 163 no.1:119-122 J1 '65.

(MIRA 18:7)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I. Lobachevskogo. 2. Chlen-korrespondent AN SSSR (for Razuvayev).

L 59601-65 EWT(m)/EPF(c)/EWP(j) Vc-4/Pr-4 RM
 ACCESSION NR: AP5017965 UR/0062/65/000/006/1009/1110
 541.6+538.113

AUTHOR: Dodonov, V. A.; Petukhov, G. G.; Razuvaev, G. A.

TITLE: Dehydrochlorination of polyvinyl chloride and some of the chemical properties of the polyene obtained

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 6, 1965, 1109-1110

TOPIC TAGS: polyvinyl chloride, polyene, electron spin resonance, dehydrochlorination

ABSTRACT: In order to elucidate the part played by certain properties of the polyene formed, a complete detachment of hydrogen chloride from polyvinyl chloride (PVC) was carried out in the presence of glycol monomethyl ether alcoholate at 50-60C. The PVC used was precipitated twice and had a molecular weight of 30,000. The polyene formed gave a strong ESR signal with a g factor (2) almost equal to that of diphenylpicrylhydrazine. The concentration of paramagnetic particles was 1017 per gram of polyene. The signal width and lack of hyperfine structure indicated a considerable delocalization of the unpaired electrons. The amplitude of the signal changed markedly under the influence of atmospheric oxygen because

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ACCESSION NR: AP5017965

of a decrease in the average degree of unpairing. On prolonged storage in air, the polyene oxidized irreversibly. It added halogens, and its presence had a catalytic effect on the chlorination of certain hydrocarbons (n-hexane, benzene). The chlorination products contained mono-, di-, and higher chlor-substituted hydrocarbons.

ASSOCIATION: Nauchno-issledovatel'skiy institut khimii Gor'kovskogo gosudarstvennogo universiteta (Scientific Research Institute of Chemistry, Gor'kiy State University)

SUBMITTED: 020ct64

ENCL: 00

SUB CODE: 00, NP

NO REF SOV: 003

OTHER: 004

Card 3/2

PETUKHOV, G.G.; GUSEVA, T.V.

Determination of iodine in organoiodine compounds by the gravimetric method. Zav. lab. 30 no.9:1071-1072 '64. (MIRA 12 6)

1. Gor'kovskiy gosudarstvennyy universitet imeni Lobachevskogo.

1. The first part of the document is a letter from the

Director of the Central Intelligence Agency to the

RAZUVAYEV, G.A.; ZHIL'TSOV, S.F.; DRUZHIKOV, O.N.; PETUKHOV, G.G.

Interaction of diisopropylmercury with chloroform and
carbon tetrachloride. Dokl. AN SSSR 156 no. 2:323-325
My '64. (MIRA 17:7)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete imeni N.I. Lobachevskogo.
2. Chlen-korrespondent AN SSSR (for Razuvayev).

RAZUMAYEV, G.A.; BRUTCHIN, O.N.; FILITSOV, S.F.; PETUKHIN, V.I.

Thermal decomposition of organomercury compounds
containing solvents. Part 1: Decomposition of
in benzene. Zhur. ob. khim. 35 no.1:174-178

PETUKHOV, G.G.; GUSEVA, T.V.

Reduction method for determining chlorine and bromine in organic substances. Zav.lab. 30 no.3:276-277 '64. (MIRA 17:4)

1. Nauchno-issledovatel'skiy institut khimii, Gor'kiy.

RAZUVAYEV, G.A.; PETUKHOV, G.G.; KAPLIN, Yu.A.

Reactions of tetraphenyllead and hexaphenyldiphenylumbane with benzene.
Zhur.ob.khim. 33 no.7:2394-2397 J1 '63. (MIRA 16:8)
(Lead) (Benzene)

HAZUVAYEV, G.A.; PETUKHOV, G.G.; KUDRYAVTSEV, L.F.; SHUBENKO, M.A.

Reaction of diphenylmercury with toluene. Zhur. ob. khim. 3²
no.8:2764-2766 Ag '63. (MIRA 16:11)

PETUKHOV, G.G.; GUSEVA, T.V.

Determination of chlorine in polychlorovinyl and perchlorovinyl
resins using the reduction method. Zav.lab. 29 no.7:806-807
'63. (MIRA 16:8)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom
gosudarstvennom universitete.
(Chlorine—Analysis) (Resins, Synthetic)

RAZUVAYEV, G.A.; MITROFANOVA, Ye.V.; PETUKHOV, G.G.; KAPLINA, R.V.

Oxidation of triphenylaluminum. Zhur.ob.khim. 32
no.10:3454 0 '62. (MIRA 15:11)
(Aluminum) (Radicals (Chemistry)) (Oxidation)